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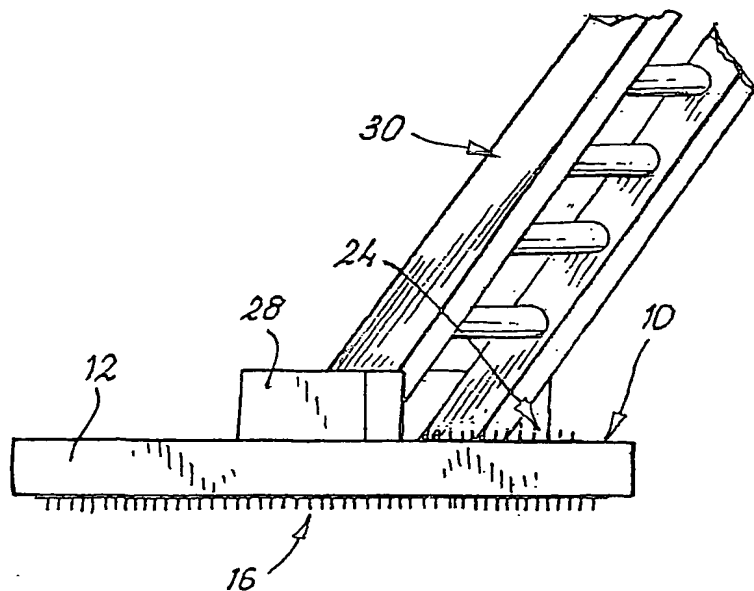
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Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LADDER SUPPORT APPARATUS



(57) Abstract: A ladder support apparatus (10) comprising in a base member (12) with a ground engaging part (16) on the underside thereof with a plurality of spikes (20) engageable with the ground. A ladder engaging part (24) is provided on the top side of the base member (12) and includes a plurality of upstanding spikes engageable with the feet of a ladder to prevent slipping thereof.

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Ladder Support Apparatus

This invention concerns ladder support apparatus, and particularly but not exclusively apparatus for preventing ladders slipping on the ground in use.

Ladders are used in a wide range of situations. Problems can be encountered with the feet of ladders slipping on the ground, and especially where the ground is quite slippery. This can cause the ladder to fall with potentially serious consequences for anybody on the ladder. Also, with soft ground a ladder can often penetrate into the ground a significant distance, which may damage for instance a lawn. Also, if only one leg of the ladder penetrates the ground to a significant degree, this could cause the ladder to fall over.

According to the present invention there is provided ladder support apparatus, the apparatus comprising a base member, a ground engaging part provided on the underside of the base member which part includes at least twenty ground engaging upstanding projections, and a ladder engaging part provided on the top side of the base member, the ladder engaging part, being engageable with the feet of a ladder so as to substantially prevent slippage thereof.

The ladder engaging part preferably includes at least twenty upstanding projections which are engageable with the feet of the ladder. The upstanding projections are preferably pointed. The upstanding projections may be provided by a pressed plate, which plate may be made of steel and may be galvanised.

The ground engaging part and/or ladder engaging part may comprise a section of pressed galvanised steel plate.

An abutment member against which the feet of a ladder can abut, may be provided on the top side of the base member. The abutment member may be upstanding from the base member, and may have a generally shallow U-shape in

which includes an elongate opening therethrough to provide a handle 14.

A ground engaging part 16 is provided on the underside of the base member 12. The part 16 covers the majority of the underside of the member 12 and comprises a pressed galvanised steel plate 18 which provides a plurality of upstanding spikes 20 formed by pressing holes 22 in the plate and then sharpening the two projections produced by forming the hole. The plate 18 has approximately 1800 spikes. A more detailed view of the spikes 20 is shown in Fig. 5. The plate 18 can be mounted on the base member 12 by any suitable means such as screws, rivets, bolts or adhesive.

A ladder engaging part 24 is provided on the top side of the base member 12. The part comprises a further pressed galvanised steel plate 26 which is similar to the plate 18 but smaller. The plate 26 has approximately 900 spikes.

A ladder abutment member 28 is provided against which the feet of a ladder can abut and to provide for correct positioning of the ladder feet. The member 28 is in the form of an upstanding wall, and has in plan view a shallow U-shape with its base running along one side of the plate 26 and the side limbs extending part way adjacent the ends of the plate 26.

In use the apparatus 10 can be located where it is required to place the feet of a ladder. The ground engaging part 16 provides for a grip on a wide range of surfaces such as tarmac, grass, carpets and even frozen surfaces. The feet of a ladder 30 are placed on the ladder engaging part 24 towards or abutting against the abutment member 28. The ladder engagement part provides a good grip on the bottom of a ladder 30. This arrangement is shown in Fig. 4. The ladder 30 can now be used knowing that the feet of the ladder 30 are securely mounted on the ground, and particularly by the high friction produced by the ground engaging part 16 and the ladder engaging part 24. The polypropylene base member 12 allows a certain amount of flex, and therefore at least partially adopts to any underlying uneven ground. The handle 14 allows the apparatus 10 to

CLAIMS

1. Ladder support apparatus, the apparatus comprising a base member, a
5 ground engaging part provided on the underside of the base member which
part includes at least twenty ground engaging upstanding projections, and a
ladder engaging part provided on the top side of the base member, the ladder
engaging part, being engageable with the feet of a ladder so as to substantially
prevent slippage thereof.

10 2. Apparatus according to claim 1, characterised in that the ladder
engaging part includes at least twenty upstanding projections which are
engageable with the feet of the ladder.

15 3. Apparatus according to claim 2, characterised in that the upstanding
projections are pointed.

20 4. Apparatus according to claims 2 or 3, characterised in that the
upstanding projections are provided by a pressed plate, which plate may be
made of steel and may be galvanised.

25 5. Apparatus according to any of the preceding claims, characterised in
that the ground engaging part comprises a section of pressed galvanised steel
plate.

6. Apparatus according to any of the preceding claims, characterised in
that an abutment member against which the feet of a ladder can abut, is
provided on the top side of the base member.

30 7. Apparatus according to claim 6, characterised in that the abutment
member is upstanding from the base member.

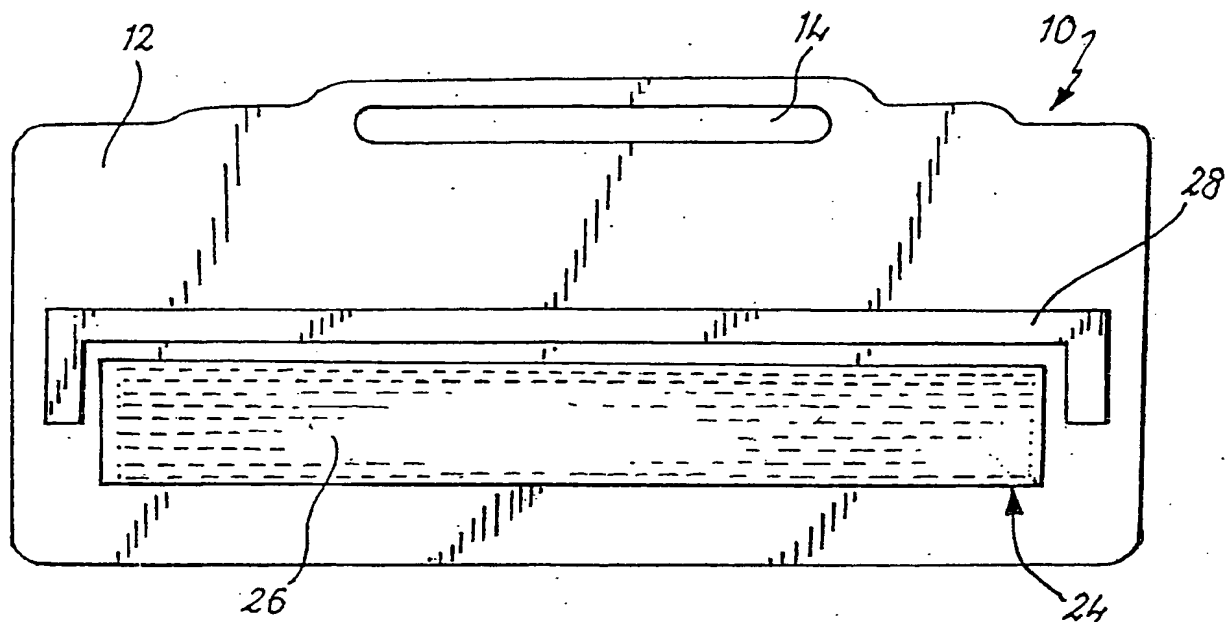


FIG. 1

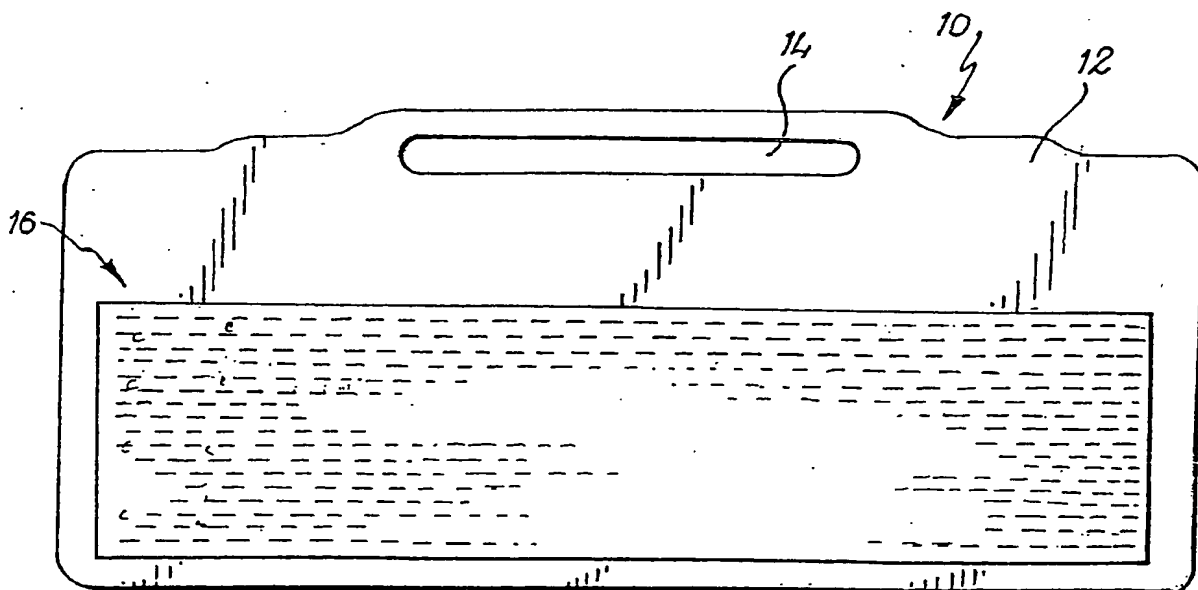
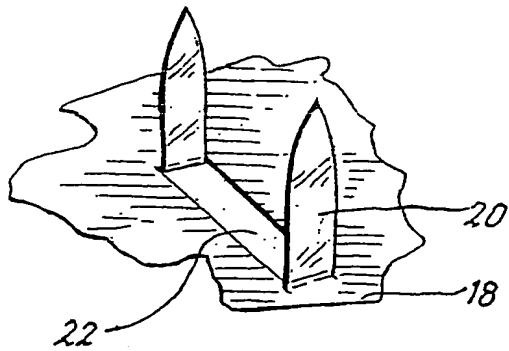
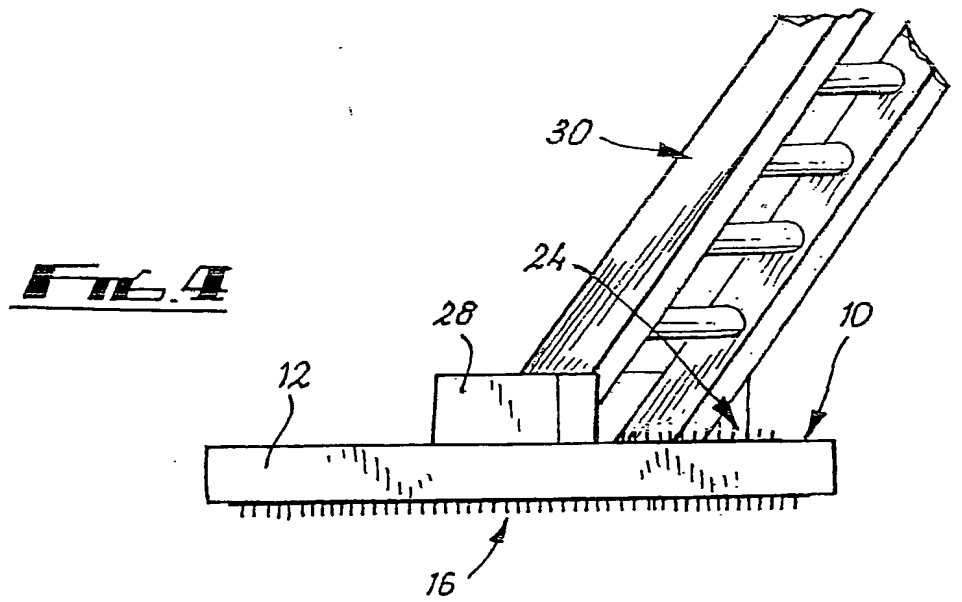
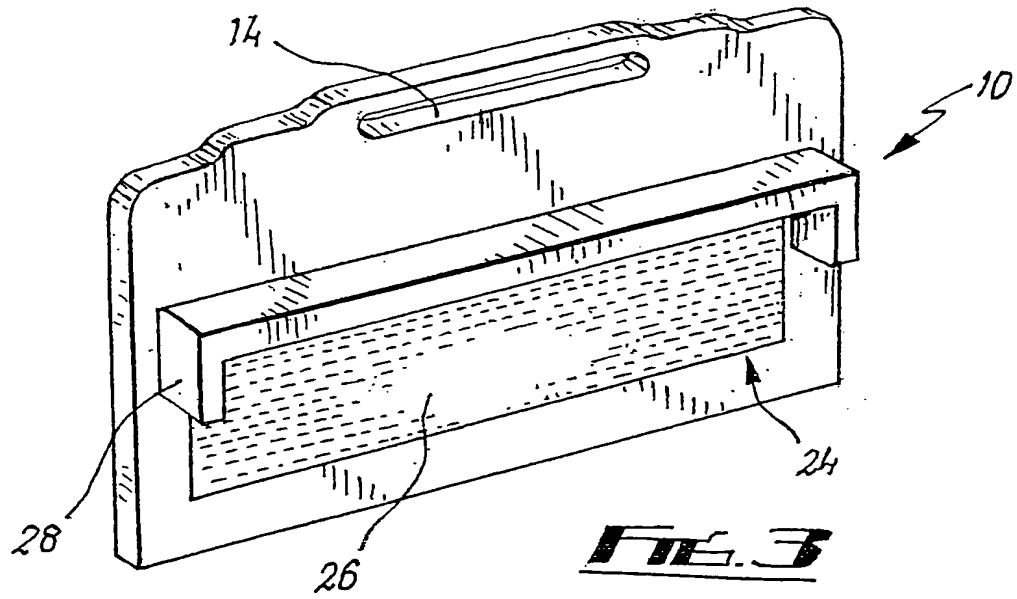


FIG. 2



INTERNATIONAL SEARCH REPORT

Internatic plication No
PCT/GB 03/05008

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E06C7/46

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E06C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 286 621 A (MCCOLGAN PETER ANTHONY GERARD ;SWAIN MAXWELL (GB)) 23 August 1995 (1995-08-23)	1,6-8, 14-16
Y	figures	2,3,5, 9-13
Y	EP 0 745 753 A (LEWIS STANLEY TREVOR ;SANDHAM JOHN MICHAEL (GB)) 4 December 1996 (1996-12-04) column 7, line 5 - line 6; figures 1,4,6	2,3
Y	US 1 897 840 A (GREENE GEORGE H) 14 February 1933 (1933-02-14) figures	5,11-13
Y	US 5 078 231 A (DAVIS ALLEN N) 7 January 1992 (1992-01-07) column 3, line 43; figure 1	9,10
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *C* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

9 March 2004

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16/03/2004

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB 03/05008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2286621	A	23-08-1995	NONE	
EP 0745753	A	04-12-1996	CA 2201270 A1	27-09-1998
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			GB 2301614 A ,B	11-12-1996
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GB 2057040	A	25-03-1981	NONE	
EP 0329422	A	23-08-1989	EP 0329422 A1	23-08-1989
			GB 2216168 A ,B	04-10-1989
US 1379808	A	31-05-1921	NONE	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/05008

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-4 as originally filed

Claims, Numbers

15, 16 as originally filed

1-14 received on 15.11.2004 with letter of 15.11.2004

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☒ the claims, Nos.: 15, 16
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/05008**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3-14
	No: Claims	1, 2
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/05008

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

- D1: GB-A-2 286 621 (MCCOLGAN PETER ANTHONY GERARD ;SWAIN MAXWELL (GB)) 23 August 1995 (1995-08-23)
D2: EP-A-0 745 753 (LEWIS STANLEY TREVOR ;SANDHAM JOHN MICHAEL (GB)) 4 December 1996 (1996-12-04)
D5: US-A-5 078 231 (DAVIS ALLEN N) 7 January 1992 (1992-01-07)

2.1. Claim 1 - Amendments beyond the original disclosure

The new claim 1 (cf. line 5) comprises the feature that the ladder engaging part comprises **"a plurality of upstanding projections"**. This expression also comprises a ladder engaging part having only two upstanding projections.

The original application only discloses a ladder engaging part having **"at least twenty upstanding projections"** (cf. original set of claims, claim 2).

Therefore, present claim 1 introduces subject-matter which extends beyond the content of the application as filed, contrary to Article 19(2)/Article 34(2)(b) PCT.

Remark: A claim 1, comprising the expression **"at least twenty upstanding projections"** instead of the expression **"a plurality of upstanding projections"**, would meet the requirements of Article 19(2)/Article 34(2)(b) PCT.

The following part of the reasoned statement is based on such a modified claim 1.

2.2. Claim 1 - Novelty objection (D2)

The examiner does not agree with the applicant's interpretation of the disclosure of D2.

D2 discloses (the references in parentheses applying to this document):

a ladder support apparatus, comprising a base member (1). The base member has on each side a rubber non-slip grip: i.e. a stair grip (17) on the bottom side and a ladder grip (7) on the top side (cf. D2, fig. 4-6 and column 7, paragraph 1). For the skilled man, it's clear from the drawings that said non-slip rubber grips (7 and 17) have a profiled pattern comprising a plurality of at least twenty parallel ridges, i.e. upstanding projections.

The base member (1) further comprises an abutment member (2) (cf. D2, fig. 6)

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB 03/05008

including a transversely extending, upstanding wall.

The subject-matter of claim 1 is therefore not new (Art. 33(2) PCT).

2.3. Dependent claims

Dependent claims 2-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, for the following reasons:

- claim 2: disclosed in D2 (cf. paragraph 2.2.)
- claim 3: obvious form for parallel ridges of a non-slip grip
- claims 4 and 5: In order to provide a more rigid variant, the skilled person would consider replacing the rubber profiled non-slip grip by a profiled plate of steel.
- claim 6: obvious form, cf. D1 (fig. 1)
- claims 7 and 8: obvious additional feature (cf. D5, fig. 1, aperture 19)
- claims 9-11: Anti-slip rubber grips (as used in D2) having an anti-slip pattern with such a large number of projections are known. The skilled person would consider providing such a anti-slip grip on the ladder support apparatus of D2
- claim 12: not clear: relative feature (cf. Guidelines, 5.34)
- claims 13 and 14: obvious material choice

3. The specific form of the projections of the ladder engaging part could form the basis for a claim meeting the PCT-requirements. An independent claim comprising:

- all the features of **ORIGINAL claims 1, 2 and 4**, and
- the clarification "**... wherein said upstanding projections of the ladder engaging part are provided by upstanding spikes (20) formed by pressing holes in the pressed plate.**"

would meet all the requirements of the PCT.

(J. Demeester)